

COMPUTER SCIENCE: A DISCIPLINE NECESSARY FOR PROMOTING THE USE OF ICT IN NIGERIA EDUCATIONAL SYSTEM

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Abstract

All hands are on deck by government and respective stakeholders in Nigeria to raise the standard of education and technically empower the workforce with a strong view to develop our economy on a strong foundation. Modern economies are built around and sustained with information communication technology (ICT), to guarantee reliable and dependable quality workforce in ICT development, the teaching of computer science as a discipline at graduate and post graduate level in higher institutions in Nigeria is a necessary prerogative. In advanced countries these institutions have improved their standard of education to comfortable satisfactions; Nigeria like other developing countries is trying to attain greater heights in the use of ICT to improve their educational system. Government in Nigeria is doing everything possible to score highpoints on development of ICT. This paper shall examine the importance and contributions of computer science as a course to the development of ICT in Nigeria.

Introduction

Computer Science as a discipline is wide and dynamic. Dynamic in the sense that changes occurs every day and hopefully one is expected to be abreast with these changes as fast as possible. The technical approach to information system and possibly to Information communication technology (ICT) emphasis mathematically based models to study information systems as well as physical technology and formal capabilities of these systems (Gerald & David, 2003). The disciplines that contribute to the technical approach are computer science, management science and operation research. Computer Science is concerned and bothers on establishing theories of computability, methods of computation and methods of efficient data storage and access. Management science of course, emphasis the development of models for decision making and management practices and finally, operation research tenets focuses on mathematical techniques for optimizing selected parameters of an organization (Gerald & David, 2003).

The computer system is a tool that can effectively be used by anyone who has been trained on its use irrespective of the person's qualification or background. The use of the computer system by anyone does not elevate the person to be a graduate of computer science. A graduate of computer science is expected to have training on not only the practical of the computer system but including in-depth introduction to Computer networks , Internet computing, Database, Web design and Artificial Intelligence and other areas to numerous to mention.

ICT means Information communication technology and it is all about bring equipment and services –useful ones in the organization of teaching and aiding researches activities. Equipment such as the digital projector, the screen and a computer laptop to deliver class lectures to a large class. And services like electronic and distance learning programme offered in several schools the world-over. In recent times, computer science as a discipline is not only thought in the Universities and Polytechnics, but schools or simply computer schools sometimes recognized by government, teach, train and graduate student in several ways to meet an ever demanding area where there are shortage of staff.

Hardware and Software

The computer is an amazing machine and with it you can perform several functions including improving the quality of education. It is because wherever, human intellect and technology meets you will find a computer (Alexis & Mathew, 2002). You will find computers in libraries, classrooms and sincerely they are becoming essential tools to the learning process just like books, paper and pen.

Information communication technology (ICT) is computer based system that relies on computer and software technology to process and disseminates information. Electronic computers and related software programs are the technical foundation, tool and materials of modern information systems. In an information communication technology system, computers provide the equipment for storing and processing information (Gerald & David, 2003). Behold computer software are sets of operating instructions that direct and control computer processing. It is an agreed fact that knowing how computers and computer programs works is important in knowing how to manipulate solutions for failing systems.

In summary computer hardware is the physical equipment for used for input, processing and output activities. It consists of the following computer units: various inputs, output and storage devices and the physical media to link these devices together. The computer software consists of preprogrammed instructions that control and coordinates the hardware components (Kenneth and Jane Laudon, 2006).

Networks and Internet

Computer communication has become an essential part of our infrastructure. It is made possible by computer networks; an interconnected collection of devices that enable storing, retrieving and sharing of information. Devices commonly connected include personal computers, minicomputers, mainframe computers, terminals, work-station, clients and various data storage devices. Technologically the internet is simply a large global network created by the acceptance of standard it is important to further state that the Internet is a loose collection of computer networks through out the world and one of the most important reasons for connecting computers is the ability to share data and this can have profound changes in the education sector. The internet is now an essential part of owning and using any PC and is available to everyone on a daily basis (Alexis and Mathew, 2002). The role of ICT in the education sector is explained in the components below.

Research Purpose: The presence of a network confirms that there is the presence of client and server machines and this brings about the Internet access. Where there is Internet access: scientist, researchers would use computers to develop theories, collect data, test data, simulate and to exchange information. The Internet provides access to online libraries twenty four hours everyday and this is truly a sincere way of improving the quality of education in the country.

Communication: In today's global community, the more information you have at you finger tips the easier it is to make an informed decision. In the area of education timely information is very important and the internet provides this service reasonably.

Information Sharing: In recent times, Universities and Polytechnics have seen reasons to have presence on the Web, including examination bodies and government institutions under the ministry of education. Once this is done they can share information but the greatest beneficiaries of these new

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innovations are the students who can now enroll, check result and register online. Thus relieving of problems encountered years back giving more time to spend reading their books.

Journals Publications and Call for Papers: International journals on various fields and discipline are well domiciled on the on the World Wide Web. This platform can as well act as training ground fro self development for academically serious minded person. It is a platform that one exploit right from the comfort of your bedroom.

E-mails Services: The Email services provided by the Internet technology is a service fully utilized within the educational cycle. The beauty of it all is that lecturers and teachers can instruct their students to submit their assignment via emails. This is a double edge benefit as students gain from assignment and equally gain from preparing their electronically.

Electronics Conferencing Tool: In developed countries of the world this service is fully exploited and is yet to be so practiced in the developing countries but its use is gradually beginning to pick up. Internet conferencing tools are used in organizing conferences, meetings, seminars and workshops on line (Gerald & David, 2003). Web conferencing and collaborative software provides a virtual conference table where participant can view and modify document and slides or share their thoughts and comments using chats, audio or video. With time this services will be fully utilized in improving the educational sector in Nigeria with it usual advantages of reducing the need for face to face meeting saving time and travel cost.

Training Schools: The computer system is a fascinating machine and can do a lot of things. It has touched people's life in a special and fundamental ways. The emergence of computer technology have brought forward challenges and sometimes leading to people discovering the talent they are made of. So many people have taken up challenges by setting up computer schools, creating wealth with it and impacting knowledge where necessary. In course of government organizing poverty alleviation programmes and vocational training, emphasis has been laid on training youth on the use of computer because of the high demand for their services.

Distance Learning Schemes

In many advanced countries in the world, Europe and the Americas schools of various grades have successfully organized distance learning with credible success. It is equally possible to achieve the same feat here but certainly with time, it is specifically designed for staffs that would not ordinarily have the opportunity to quit their jobs for school. With this schemes it is possible manage your work with the school proceedings.

E-Learning

E-learning means electronics learning. It is a type of learning supported education where the medium of instructions is through computer technology, specifically involving digital technologies. E-learning in recent times has contributed immensely to the quality of education in this country as it has been deployed often to empower students where necessary. Sometimes , students that uses e-learning services may not be involved in face to face as the services emphasis planned teaching or learning experience that actually focuses on the use of a wide spectrum of technologies, mainly Internet or computer-based, to reach teeming learners. This unique service has enable many persons have degrees

online. Although it is true that not all schools in Nigeria participate in this technology obvious because of the cost implications but in sometimes it is used in conjunction with face to face teachings.

Advantages of e-mails: includes enabling people to avoid traveling, and permits them to work in a virtual environment thus leading to reduction of paper use. Virtual notes instead of paper notes and online assessments instead of paper assessment this is why it is usually said to be environmentally friendly. E-learning is tied with convenience and flexibility that interest learners because it is self-paced and the learning sessions are available twenty four hours everyday. Users are restricted based on time and they can suspend learning sessions as it appeals to them. E-learning facilities may not in anyway be affected by physical or political boundaries and teachers and lecturers of reputable and high calibre can be influenced to make contributions from any part of the world to the learning process thus providing quality education at an affordable cost.

Problems and Challenges of Information Communication Technology (ICT)

Although the emergence and use of ICT in the educational sector in Nigeria has brought about enormous benefits and efficiencies, they have also created new ethical and social problems and challenges.

Electricity Power Problems: Electricity generation is a major problem in developing countries. In the case of Nigeria the issue of corruption and noncommittal attitude of people in power have further worsen our case. It is perennial problem that have degenerated to permanent problem. When necessary investment have been made on acquiring ICT facilities and infrastructures it is again a different issue with finding solution for necessary power supply.

Hardware and Software: Many organizations or government establishment may find reasons to investment meaningfully because of the bogus proposal beautifully drawn. However, full or maximum benefit of that system may not be derived because those in charge may not appreciate the complementary asset required to make their technology asset work. The power of computer hardware and software changes from time to time and the necessary investment and appropriate to enhance adequate productivity.

Cost of ICT Infrastructure: The cost of ICT infrastructure and equipment are usually on the high side, so expensive that one is eager to ensure making appropriate returns and not necessary in the education sector. Economic returns such as staff training and productivity efficiency. However, the more worrisome problem is that of maintaining the equipment along side the infrastructure, because it capital intensive sometimes no one is prepared to be involved until the system are totally down.

Computer Health Related Problems: The use of computers and other ICT equipment have been linked with some serious health problems. Long use of the computer can result to eyes strain and headache and sometimes to back pains.

Job Elimination: Ever since the introduction of computers into the education sector, campaign and assistance have given to staff to embark on computer training and reasonable progress has been made. Where it is possible jobs or positions have been lost.

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Threats to Individual Privacy and Individual Propriety: The internet as have been discussed is a platform for sharing data and for this reason alone there is threat to individuals private data. Although security software are being developed everyday to address these problems yet there are those whose aim is to break into these systems with intent to commit frauds of different magnitude. This is stakeholders must build resilient infrastructure that can withstand huge increase in peak loads and routine assaults from hackers and viruses.

Recommendations

But again, it is evident that qualified hands are needed to keep the tempo of progress on and this demands that staff have to be trained and retrained on the use of computers and where necessary students have to be encouraged sometimes by way of scholarship to pursue relevant degrees in computer science management science and operation research.

Conclusion

Modern economies these days are built around and sustained with ICT. It is crystal clear that the application of ICT in addressing series of problems inherent in our educational system ranging from research purposes which have up till now been hampered with dearth of books and teachers, class room problem that can be solved by use of digital projector and the computer, including project, seminar and workshop presentation using slides.

Students registration online, purchase of forms, transcript request online and a host of other services provided through the Internet are tell tales that this technology is favoring and will transform the education sector in no time to greater heights.

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